AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 56, line 18, and insert the following rewritten paragraph:

To explain the processing of S2200 in detail, based on a motion at the geometrically estimated body position determined as described above in a preceding control cycle or earlier, a geometrically estimated body acceleration, which is a second-order differential of the geometrically estimated body position, is calculated. This processing is carried out by a block 301 shown in Fig. 13. It is assumed that the processing for determining the geometrically estimated body position is carried out by a block 300 shown in Fig. ~~17~~13. Complementarily, as long as the positions of a body representative point and the accelerometer coincide with each other, an estimated body posture is not necessary in calculating a geometrically estimated body acceleration (strictly speaking, the acceleration at the position of the accelerometer in the body 3 that is geometrically estimated).

Please replace the paragraph beginning at page 62, line 8, and insert the following rewritten paragraph:

Subsequently, the estimated body posture angular error is converted to a sensor coordinate system (a coordinate system having its coordinate axes matched to detection axes of the gyro sensor) by a block 305 shown in Fig. 13, and then a value obtained by multiplying the converted value by an integration gain Ka is integrated to determine an estimated gyro sensor drift (an estimated value of the

drift of the gyro sensor). Furthermore, the estimated gyro sensor drift is subtracted from a gyro sensor detected value ωin (detected body angular velocity value) by a block 307 so as to determine an angular velocity with a corrected drift. In the block 307, a drift of a yaw rate is also subtracted, as necessary, which will be discussed hereinafter. Then, the angular velocity with the corrected drift is converted to a global coordinate system by a block ~~308~~350, using an estimated body posture, so as to determine a global body angular velocity ωgl.